RIVERS AT RISK

New dams and the threat to California rivers

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California's Rivers Threatened By Dams

There are more than 1,400 federal, state, and private dams in California. So many rivers in California have been harnessed by dams, the U.S. Fish and Wildlife Service considers the few remaining free flowing rivers in the state to be endangered ecosystems. A 1996 study of the Sierra Nevada commissioned by Congress found that aquatic and riparian systems were the most degraded ecosystems in the mountain range, in part due to the region's extensive system of hydroelectric and water supply dams.

Dams have contributed to the extinction or decline of nearly two-thirds of the state's native fishes. More than 90 percent of former salmon habitat has been blocked by dams in the Central Valley. Populations of the Delta smelt—a native fish species found only in the Sacramento-San Joaquin Delta—have declined by 90 percent due to massive diversions from the estuary. A public trust report prepared by the California Lands Commission in 1993 found that the extensive system of dams in the state contributed to the loss of free flowing rivers, inundated sensitive habitats, blocked upstream passage of fish, changed flows, and affected long term geomorphic processes.

Although pundits have trumpeted "the end" of the big dam building era in California, someone has evidently forgotten to tell the dam engineers. The 1998 update of the California Water Plan by the California Department of Water Resources identifies 58 new or enlarged dam and diversion projects in California to meet supposed future water demands. The federal and state multi-agency program known as CALFED has identified 23 new or enlarged dam and canal projects supposedly needed to ensure future water supply reliability.

Many of these proposed dam projects are located on the last natural segments of California's fast disappearing free flowing rivers. These rivers support populations of rare, threatened, and endangered fish and wildlife, and still offer outstanding opportunities for outdoor recreation to the state's growing population...but for how long?

Just some of the water development proposals identified in the water plan or under consideration by CALFED agencies include:

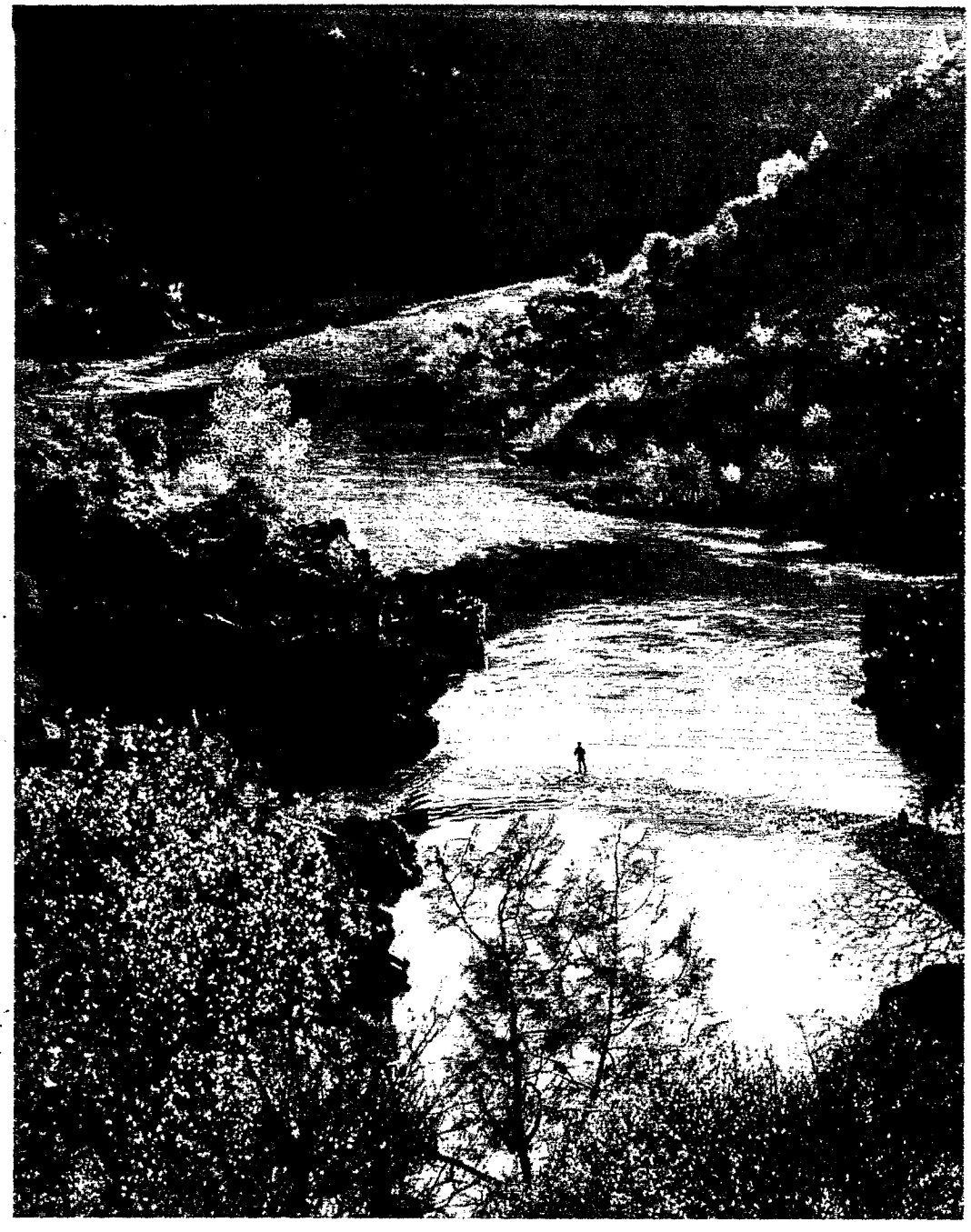
- Raising or enlarging existing dams on the Trinity, Sacramento, McCloud, Pit, American, Mokelumne, San Joaquin, Kings, and Santa Ynez rivers.

- Building large, new dams on the Yuba, American, Cosumnes, Mokelumne, and Carmel rivers, as well as some of their tributaries.

Tom Hesseldenz

Shasta Dam enlargement would drown up to 16 miles of the upper Sacramento River.

Cover: The McCloud River's outstanding wild trout fishery is threatened by enlargement of Shasta Dam.
Photo by: Tom Hesseldenz



Mark Leder-Adams/Rapid Shooters

More than 48 miles of the American River would be inundated by the Auburn dam.

- Constructing a vast system of new diversions and canals to supply water to large, "off stream" storage reservoirs in the Central Valley and to move water around the Sacramento-San Joaquin Delta.

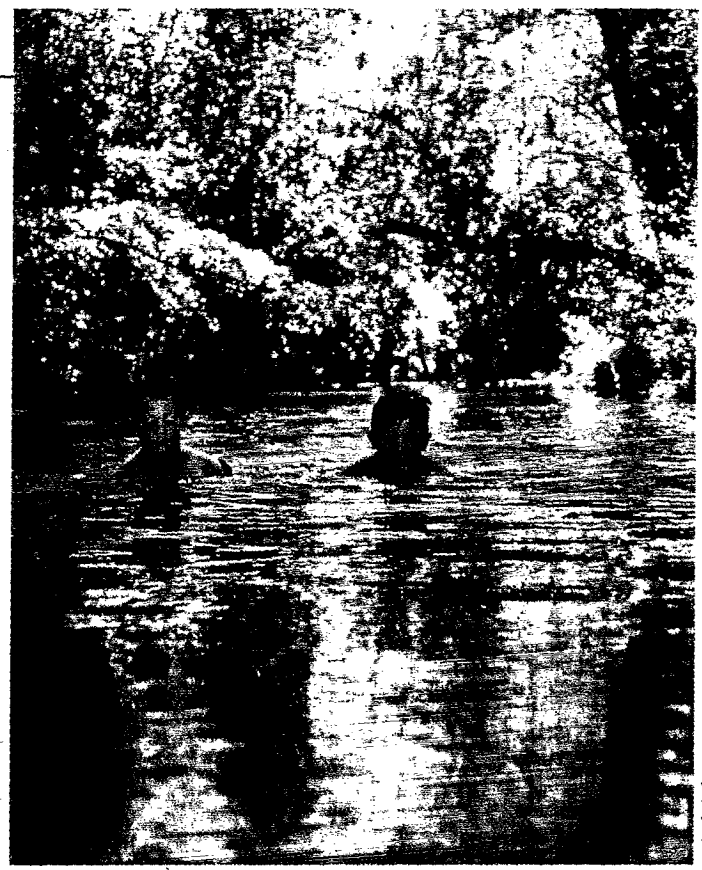
- Significantly increasing pumping of water from underground aquifers throughout the state.

The ecological butcher's bill for enlarging existing dams, building new dams, diverting more water from rivers, and pumping more groundwater will be staggering. These ambitious dam, diversion, and pumping plans will result in the destruction of many of the state's few remaining free flowing rivers. It will also continue the decline and extinction of native fishes and other species, and the loss of recreational opportunities for millions of Californians. Fortunately, there is a better way to meet our need for water and protect our free flowing rivers and aquatic ecosystems.

The premise of the water plan and the CALFED program is that new water development is needed to meet the demand of California's growing population, to ensure the reliability of existing water supplies, and to restore aquatic ecosystems already degraded by the state's existing dams. However, the push for new and enlarged dams is based on the assumption that California will continue to use water much as it has done in the past, and fails to consider any change in how we use our existing supplies. More efficient use and management of our existing water supplies and significant investments in water reclamation and conservation can substantially reduce, if not eliminate, the need to build more dams and develop new surface water supplies over the next 20 to 30 years.

California is at a crossroads. We can choose to take the road already traveled and condone the destruction of our few remaining free flowing rivers. Or we can take what's been called "the soft path" to a better and wiser use of our existing water resources. The future of our rivers depends on a new and less damaging direction.

Top Ten Dam Threats To Rivers In California

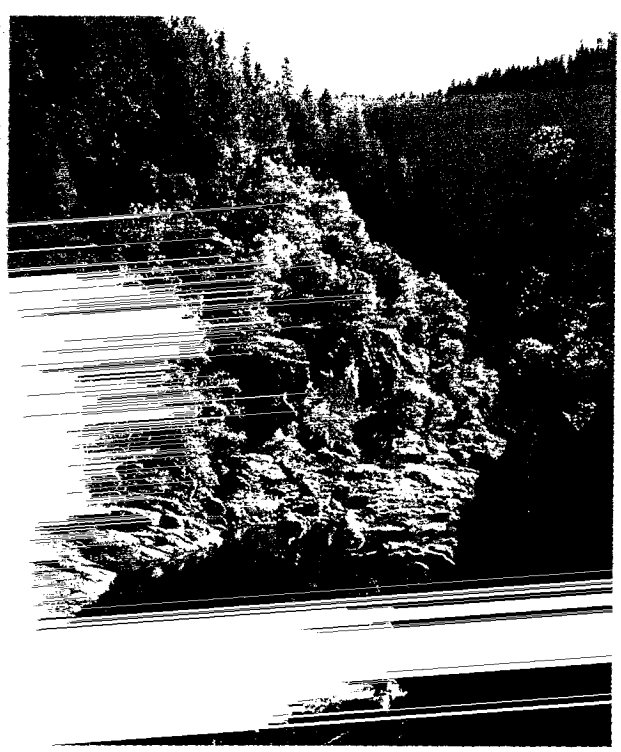


Jack Gelastio

The upper Carmel River is threatened by the New Los Padres dam.

Super Shasta Dam — Sacramento River: CALFED dam engineers are studying raising the existing Shasta dam and reservoir by up to 200 feet. Such an enlargement would triple the size of Shasta's existing reservoir, cost a whopping $5.8 billion, but only increase the dam's annual yield by about 25 percent. The maximum raise would drown 42 miles of the upper Sacramento, McCloud, and Pit rivers, and their tributaries, as well as 30,000 acres of public forest lands managed for recreation and wildlife. Several small towns, reservoir-based recreation facilities, and major sections of Interstate 5 and the Union Pacific Railroad would have to be relocated. The enlarged dam and reservoir would require more than doubling downstream flood flow releases, threatening the capacity of the existing levee system. Downstream flows would be highly modified, adversely impacting numerous threatened and endangered fish and wildlife species.

Sites-Colusa Project — Sacramento River: This "off stream" storage project would divert water from the Sacramento River using a variety of existing and new diversion facilities and canals, storing it in the Sites Valley, which is located on the west side of the Sacramento Valley at the foot of the Coast Range. In its largest variation, the project would store up to 3.3 million-acre feet (MAF) of water, and require the construction of 4 large dams and nine smaller dams, as well as expansion of existing canals and/or construction of new canals. Of greatest concern is the indirect impact of this project on Sacramento River flows. Under some scenarios, up to 67 percent of the Sacramento River's spring-time flow could be diverted to fill the Sites-Colusa reservoir, with possible adverse impacts to the river's threatened and endangered salmon runs. The reservoir site also carries a high potential for reservoir-induced earthquakes. Total cost could be as high as $1.7 billion for the reservoir and up to $830 million for new or enlarged diversions and feeder canals.



our dam projects are planned for the Mokelumne River.

Thomes-Newville Project — Thomes Creek & Sacramento River: Another "off stream" storage project located on the west side of the Sacramento Valley, Thomes-Newville would require the construction of a dam up to 400 feet high, two smaller dams, and several diversion facilities and feeder canals. The project would divert water from Thomes Creek, North Fork Stony Creek, and the Sacramento River. The dam would block access to historic spawning and holding habitat used by the endangered spring run chinook salmon and threatened steelhead. More than 35 miles of perennial streams, 152 acres of wetlands, and nearly 14,000 acres of oak woodland habitat would be drowned. Thomes-Newville would cost up to $1.9 billion for the dams and up to $830 million for enlarged or new diversions and feeder canals.

Enlargement of Camanche & Pardee Dams, Middle Bar and Devils Nose Dams — Mokelumne River: The dam engineers are working overtime on the Mokelumne River. Long standing but never implemented plans to enlarge the

existing Camanche and Pardee dams on the Mokelumne would drown several miles of river popular for outdoor recreation. Under study by San Joaquin County, the proposed Middle Bar dam would bury a section of scenic Highway 49 and destroy one of the most popular kayaking rivers in the state. Further upstream, the proposed 400-foot high Devil's Nose dam would drown one of the wildest and least-visited river canyons in the Sierra Nevada. Even though Amador County's bid to build the Devil's Nose dam was denied by federal regulators in recent years due to its poor economics, the destructive project remains on the state's list of dam projects to meet future water "needs."

Dutch Gulch, Tehama, & Dippingvat Dams — Cottonwood Creek: Up to three separate dams are being considered for the Sacramento's largest undammed tributary. One dam would be located on the main stem of Cottonwood Creek and two would be located on the South Fork. One of the projects is considered an "offstream" storage project because it would divert water from the South Fork into an adjacent watershed for storage, even though the South Fork diversion dam is more than 250 feet high and creates a 104,000 acre-foot reservoir. The dams would drown up to 130 miles of Cottonwood Creek and more than 20,000 acres of wildlife habitat would be lost. Critical habitat for the endangered spring run chinook salmon and threatened steelhead would be covered or blocked by the dams and reservoirs. Dam and canal costs for these projects range from $247 million to $1.3 billion.

Alternatives To Dams

Wiser and more efficient use of our existing water resources can alleviate the need to build new or enlarged dams, even with California's growing population. First of all, government water planners and dam engineers are overestimating the projected need for water based on California's population growth. According to the California Research Bureau, state water engineers overestimated recent water demand by 1.2 MAF —nearly the amount of water yield generated by a $5.8 billion, 200 foot raise of Shasta dam.

Water engineers have also failed to recognize permanent changes made in water use in Southern California that resulted in little or no increase in water use over the last 15 years, despite a 30 percent increase in population. The region accomplished this by significantly investing in water use efficiency, reclamation, and conservation. This kind of increased efficiency — if demanded of all other water users throughout the state — would eliminate the need for new dams. Statewide, we need to reoperate our existing dams for more efficient use, retrofit low flush toilets in existing homes, meter and purchase all water by volume, switch from water intensive crops like irrigated pasture and alfalfa to less water intensive crops, and plant water-conserving landscaping. These common sense steps would stretch our existing water supplies and make new or enlarged dams unnecessary.

Using water more efficiently rather than building new or enlarged dams is also less costly, both to our pocketbooks and to our environment. Simply installing water meters and charging people for the water they actually use in all residences in Sacramento would save more water than the proposed Auburn dam on the American River could reliably produce every year. Not only is the billion dollar Auburn dam much more costly than installing water meters (approximately $135 million for all residences in Sacramento County), these estimates don't consider the cost to the environment. Water meters would have little or no adverse environmental impact, while the Auburn dam would drown more than 48 miles of free flowing American River, and thousands of acres of habitat for sensitive, threatened and endangered species. The loss of this wild river would be incalculable.

Parks Bar Dam & Waldo Diversion — Yuba River: Plans to build a large dam on the Yuba River upstream from Marysville were shelved by federal agencies more than two decades ago. However, local water developers are still scheming to build some kind of large dam and/or diversion on the Yuba. One alternative would be to construct a 400-foot high dam and 514,000 acre-foot reservoir at Parks Bar, which would drown approximately 14 miles of the lower Yuba River. Another proposal known as the Waldo project would divert water from the river to supply an "off stream" reservoir which would drown most of the Spenceville State Wildlife Area. In addition, a toxic mine site in the area would leach poison into the reservoir. Both projects would significantly impact habitat for endangered steelhead and chinook salmon.

Auburn Dam & Folsom Dam Enlargement — American River: Congress has twice defeated legislative proposals to build a nearly 500-foot high Auburn dam on the North and Middle Forks of the American River in the last six years. In its largest variation, the dam would drown up to 48 miles of some of the wildest river canyons remaining in the Sierra Nevada, cost taxpayers more than a billion dollars, and be built on a dangerous earthquake

fault system. The latest incarnation of the dam is intended primarily for flood control, even though improving existing flood control facilities is cheaper and less environmentally destructive. Dam planners have also suggested raising the existing Folsom dam and enlarging its reservoir. A 20-to-30 foot raise of Folsom Dam would flood the lower section of the most popular whitewater recreation river in California—the South Fork American River—and cost more than $625 million. The solution to Sacramento's flood control needs is to improve the ability to release flood flows from Folsom Dam and improve downstream levees, not to drown more of the American River by building the Auburn dam or raising the existing dam at Folsom.

Los Banos Grandes Dam — Los Banos Creek & Sacramento-San Joaquin Delta: This massive "off stream" storage reservoir is intended to store water pumped from the Sacramento-San Joaquin Delta. Various projects have been considered, ranging up to a 436-foot high dam on Los Banos Creek, creating a 2 million acre-foot reservoir, and costing more than $1.5 billion. Up to 13,000 acres of habitat would be lost, including 700 acres of rare riparian sycamore forest, and 13 miles of intermittent streams. Endangered, threatened, and sensitive species directly impacted by the project include Swainson's hawk, San Joaquin kit fox, California tiger salamander, California red-legged frog, and several others. Indirectly, the project's water diversion from the Sacramento-San Joaquin Delta could adversely impact endangered salmon, steelhead, and smelt.

Paul Marizon

Raising Friant Dam on the San Joaquin River would destroy a popular kayaking run.

Friant Dam Enlargement — San Joaquin River: Raising the existing Friant Dam on the San Joaquin River by 144 feet would double the size of the existing reservoir. Three miles of the river and ten miles of seasonal tributaries would be drowned, including 3,500 acres of wildlife habitat, much of the Millerton Lake State Recreation Area, and upstream recreation lands managed by the Bureau of Land Management. Upstream hydroelectric projects would have to be relocated and a popular whitewater boating run would be lost. Downstream flows in the San Joaquin River Parkway would be reduced. The dam enlargement would cost approximately $1.3 billion.

New Los Padres Dam — Carmel River: This 282-foot high "new" dam would create a 24,000 acre-foot reservoir to bury and replace an existing dam and reservoir which has largely filled with sediment. Unfortunately, building a new $127 million dam doesn't eliminate the sediment problem, which means the new dam has a very short life expectancy. The dam and reservoir would flood 266 acres of habitat (including 24 acres of the Ventana Wilderness, 27 cultural and historical sites, and an estimated 90,000 trees and shrubs). The new dam would also impact downstream flows and existing habitat for the endangered Central Coast steelhead. Local residents have voted down the bond measure needed to fund dam construction, but water developers are expected to push for alternative sources of funding.

How Dams Harm Rivers

Although California's vast system of dams and canals have benefited its residents by providing water for drinking, industry, and agriculture, there is a darker side to this development. Dams have played a key role in the extinction and decline of many fish and other aquatic species. California has more extinct, endangered, or threatened aquatic species than any other state. Every historic salmon and steelhead run remaining in the Central Valley has been so severely reduced in population numbers due to habitat destruction and degradation caused by dams that they are all considered threatened or endangered of becoming extinct. Dams are so prevalent in California and the American West, that the U.S. Fish and Wildlife Service considers the few remaining free flowing rivers in the region an endangered ecosystem.

Dams harm aquatic and riparian ecosystems by altering natural river flows, reducing flood flows necessary for the maintenance of riparian habitat and wetlands, impacting natural water temperatures, reducing water quality, drowning terrestrial and river-based aquatic habitats, blocking the natural migration of species, and preventing the downstream movement of sand, gravel, and nutrients. Average flood flows in Central Valley rivers have been reduced by 80 percent (San Joaquin River below Friant dam) to 35 percent (Sacramento River below Shasta dam). These flow changes have significantly impacted the downstream aquatic and terrestrial ecosystems. Dams also impact people by generating a boom and bust economic cycle associated with construction, encouraging unwise development in downstream flood plains, and adversely impacting river-based tourism and recreation.

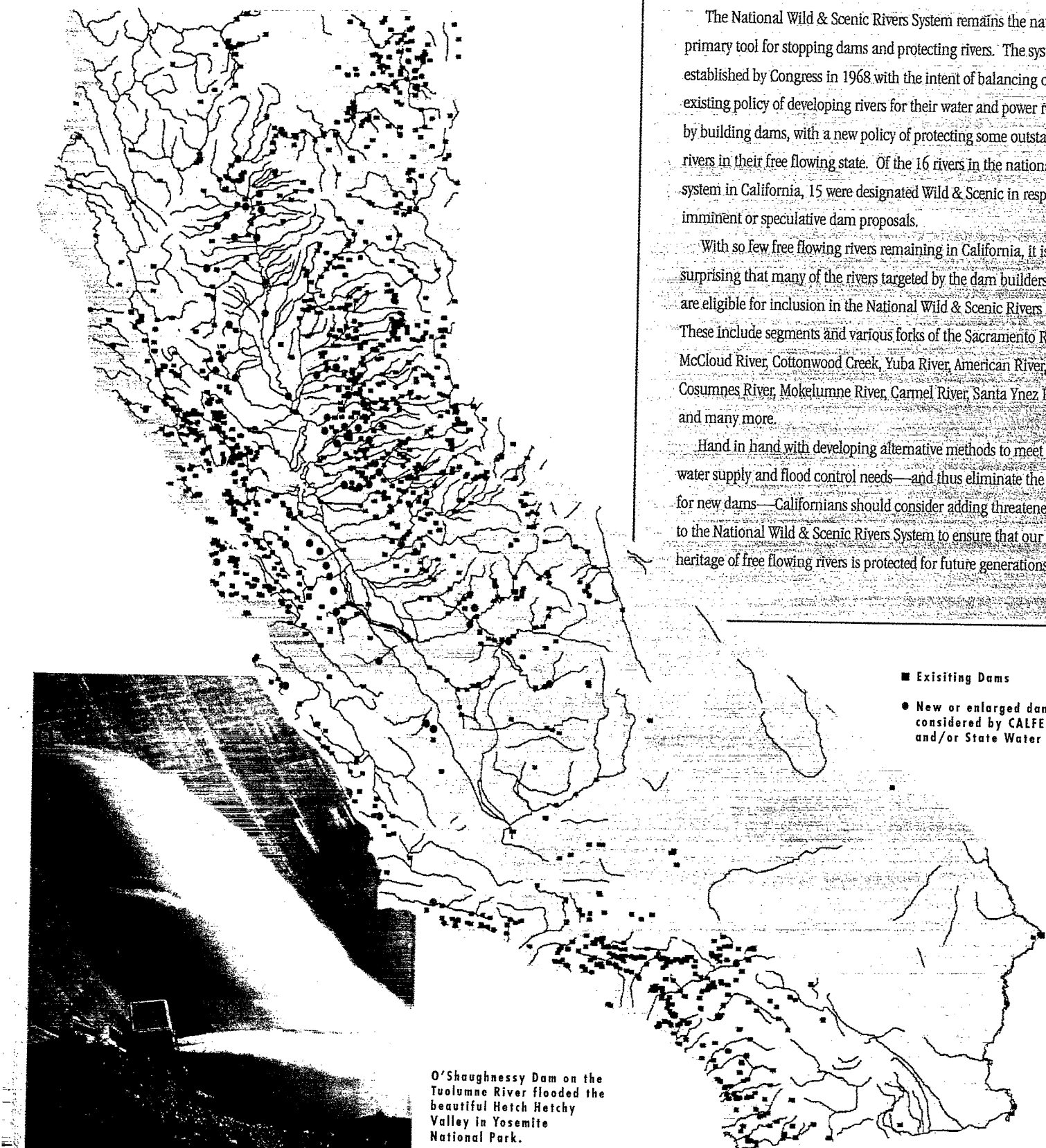
Dams In California

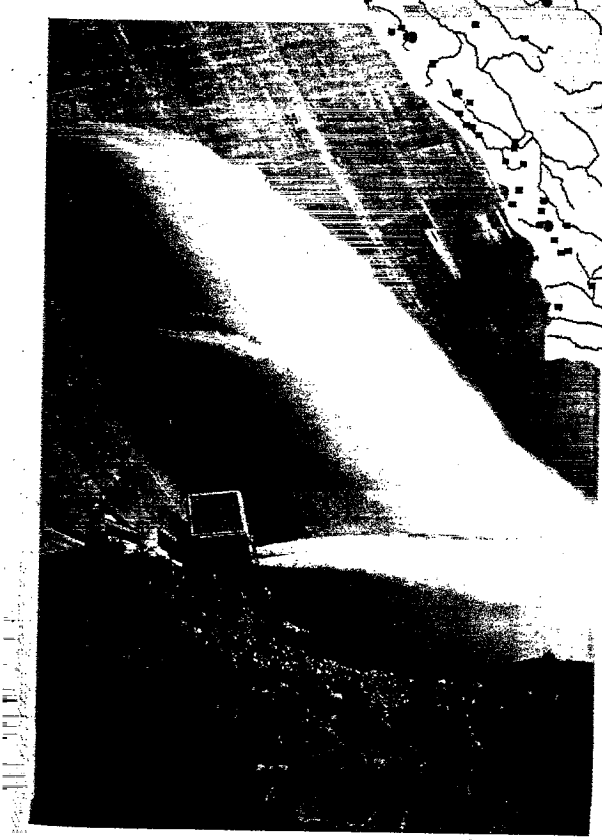
Protection for Threatened Rivers

The National Wild & Scenic Rivers System remains the nation's primary tool for stopping dams and protecting rivers. The system was established by Congress in 1968 with the intent of balancing our existing policy of developing rivers for their water and power resources by building dams, with a new policy of protecting some outstanding rivers in their free flowing state. Of the 16 rivers in the national system in California, 15 were designated Wild & Scenic in response to imminent or speculative dam proposals.

With so few free flowing rivers remaining in California, it is not surprising that many of the rivers targeted by the dam builders today are eligible for inclusion in the National Wild & Scenic Rivers System. These include segments and various forks of the Sacramento River, McCloud River, Cottonwood Creek, Yuba River, American River, Cosumnes River, Mokelumne River, Carmel River, Santa Ynez River, and many more.

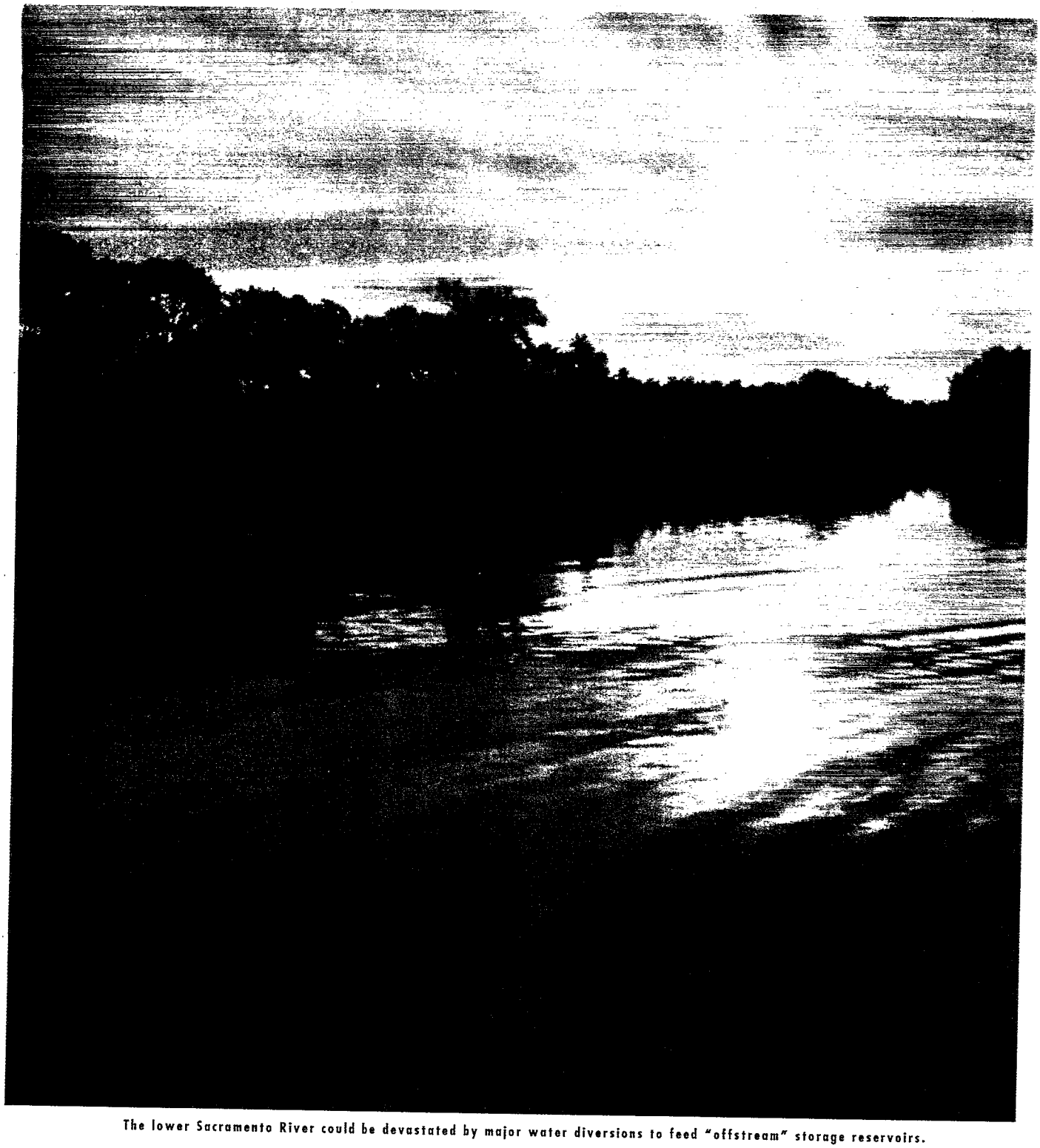
Hand in hand with developing alternative methods to meet our water supply and flood control needs—and thus eliminate the need for new dams—Californians should consider adding threatened rivers to the National Wild & Scenic Rivers System to ensure that our heritage of free flowing rivers is protected for future generations.





O'Shaughnessy Dam on the Tuolumne River flooded the beautiful Hetch Hetchy Valley in Yosemite National Park.

Sources: California State Lands Commission
CALFED Bay-Delta Program
Dept. of Water Resources



Brad Richards

The lower Sacramento River could be devastated by major water diversions to feed "offstream" storage reservoirs.

FRIENDS OF THE RIVER

About Friends of the River

Friends of the River is California's statewide river conservation organization. We work to protect and restore rivers and develop alternatives to traditional water resource development in California. Friends of the River has played a key role in adding numerous rivers throughout the state to the National Wild & Scenic Rivers System, while also successfully advocating alternatives to dam development to meet our water supply, power, and flood control needs.

For more information about Friends of the River or about river conservation in California, contact us at 915 20th Street, Sacramento, CA 95814, phone: (916) 442-3155, fax: (916) 442-3396, E-mail: info@friendsoftheriver.org.

www.friendsoftheriver.org

Text: Steve Evans; Design: Jenni Haas
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